LISTING OF CLAIMS:

1. (Currently amended) A vibration type angular velocity sensor comprising:

first and second sensor units each having a vibrator ~~oscillating~~ that oscillates independently in a predetermined standard vibrating ~~direction, and~~direction and a sensing waveform generating section that detects an angular velocity oscillatory component generating in an angular velocity sensing direction differentiated from said standard vibrating direction when an angular velocity is applied to said ~~vibrator and~~vibrator, and each waveform generating section also generates an angular velocity sensing waveform based on said angular velocity oscillatory component, said first and second sensor units causing ~~their~~ the vibrators to oscillate with mutually opposite phases in said standard vibrating direction so as to cause ~~respective~~ the respective sensing waveform generating sections to generate first and second angular velocity sensing waveforms having mutually inverted phases,

~~differential~~ a differential waveform ~~detecting means~~detector for obtaining a differential waveform between said first angular velocity sensing waveform and said second angular velocity waveform so as to cancel in-phase components acting to respective vibrators of said first and second sensor units in said angular velocity sensing direction, and

~~input~~ an input gain ~~adjusting means~~adjuster for independently and variably adjusting at least one of an input gain of said first angular velocity sensing waveform and an input gain of said second angular velocity sensing waveform entered into said differential waveform ~~detecting means~~detector so as to reduce a residual in-phase component of said differential waveform.

2. (Currently amended) The vibration type angular velocity sensor in accordance with claim 1, wherein

said differential waveform ~~detecting means~~detector includes a differential amplification circuit that inputs analog data of said first and second angular velocity sensing waveforms, and said input gain ~~adjusting means~~adjuster includes an analog input gain adjusting circuit that adjusts an analog input gain of said angular velocity sensing waveform.

3. (Currently amended) The vibration type angular velocity sensor in accordance with claim 2, wherein

said sensing waveform generating section includes a vibration detecting capacitor for changing ~~the distance~~a distance between electrodes in accordance with said angular velocity oscillatory component, a bias power source for applying a constant bias voltage to said vibration detecting capacitor, and a charge amplifier for detecting a charge amount change of said vibration detecting capacitor in accordance with a change of said distance between the electrodes when said bias voltage is applied and for converting the detected charge amount change into a voltage to output an angular velocity sensing voltage ~~waveform,~~waveform, and

said analog input gain adjusting circuit is disposed between said charge amplifier and said differential amplification circuit for adjusting an input gain of said angular velocity sensing voltage waveform produced from said charge amplifier and entered into said differential amplification circuit.

4. (Original) The vibration type angular velocity sensor in accordance with claim 2, wherein

said analog input gain adjusting circuit has a buffer amplifier provided at an input stage of said differential amplification circuit that inputs said angular velocity sensing waveform,

at least part of a gain determining resistor of said buffer amplifier is constituted by a variable resistor, and

an output of said buffer amplifier being gain adjusted based on resistance value adjustment of said variable resistor is entered into said differential amplification circuit as the angular velocity sensing waveform having been subjected to analog input gain adjustment.

5. (Currently amended) The vibration type angular velocity sensor in accordance with claim 3, wherein

said analog input gain adjusting circuit includes a variable resistor constituting at least part of ~~the gain~~a gain determining resistor of said differential amplification circuit, and said analog input gain adjusting circuit adjusts ~~the analog~~an analog input gain of said angular velocity sensing waveform entered into said differential amplification circuit based on resistance value adjustment of said variable resistor.

6. (Original) The vibration type angular velocity sensor in accordance with claim 4, wherein said variable resistor has a resistance value being irreversibly variable and adjustable only in a predetermined direction.

7. (Original) The vibration type angular velocity sensor in accordance with claim 6, wherein said variable resistor is a laser trimmable resistor.

8. (Currently amended) The vibration type angular velocity sensor in accordance with claim 1, further comprising ~~phase-adjusting means~~a phase adjuster for adjusting an input waveform phase of at least one of said first angular velocity sensing waveform and said second angular velocity waveform to be entered into said differential waveform ~~detecting means~~detector.

9. (Currently amended) The vibration type angular velocity sensor in accordance with claim 1, wherein

a signal processing section is provided for each output of said first and second sensor units to remove a noise component having a frequency different from a driving frequency of said ~~vibrator~~vibrators,

the in-phase components acting to respective vibrators of said first and second sensor units include a proximity noise oscillatory component within a frequency region ranging to ±50% about the driving frequency, and

said input gain ~~adjusting means~~adjuster executes an amplitude adjustment for a sensor output waveform produced as a composite output of the angular velocity oscillatory component and said proximity noise oscillatory component, for at least one of said first and second sensor units, thereby reducing a relative amplitude difference between two proximity noise oscillatory components of respective sensor units.

10. (Original) The vibration type angular velocity sensor in accordance with claim 5, wherein said variable resistor has a resistance value being irreversibly variable and adjustable only in a predetermined direction.

11. (Original) The vibration type angular velocity sensor in accordance with claim 10, wherein said variable resistor is a laser trimmable resistor.

12. (New) A vibration type angular velocity sensor comprising:

first and second sensor units having respective vibrators oscillating in a predetermined standard vibrating direction and sensing waveform generating sections that detect an angular velocity oscillatory component generating in an angular velocity sensing direction differentiated from said standard vibrating direction when an angular velocity is applied to said vibrators, and the sensing waveform generating sections also generate an angular velocity sensing waveform based on said angular velocity oscillatory component, said first and second sensor units causing the vibrators thereof to oscillate with mutually opposite phases in said standard vibrating direction so as to cause the respective sensing waveform generating sections to generate first and second angular velocity sensing waveforms having mutually inverted phases,

a differential waveform detector for obtaining a differential waveform between said first angular velocity sensing waveform and said second angular velocity waveform so as to cancel in-phase components acting to respective vibrators of said first and second sensor units in said angular velocity sensing direction, and

an input gain adjuster for adjusting at least one of an input gain of said first angular velocity sensing waveform and an input gain of said second angular velocity sensing waveform entered into said differential waveform detector so as to reduce a residual in-phase component of said differential waveform,

wherein

said differential waveform detector includes a differential amplification circuit that inputs analog data of said first and second angular velocity sensing waveforms, and said input gain adjuster includes an analog input gain adjusting circuit that adjusts an analog input gain of said angular velocity sensing waveform,

said sensing waveform generating sections include a vibration detecting capacitor for changing a distance between electrodes in accordance with said angular velocity oscillatory component, a bias power source for applying a constant bias voltage to said vibration detecting capacitor, and a charge amplifier for detecting a charge amount change of said vibration detecting capacitor in accordance with a change of said distance between the electrodes when said bias voltage is applied and for converting the detected charge amount change into a voltage to output an angular velocity sensing voltage waveform, and

said analog input gain adjusting circuit is disposed between said charge amplifier and said differential amplification circuit for adjusting an input gain of said angular velocity sensing voltage waveform produced from said charge amplifier and entered into said differential amplification circuit.

13. (New) A vibration type angular velocity sensor comprising:

first and second sensor units respectively having vibrators oscillating in a predetermined standard vibrating direction and sensing waveform generating sections that detects an angular velocity oscillatory component generating in an angular velocity sensing direction differentiated from said standard vibrating direction when an angular velocity is applied to said vibrators, and the sensing waveform generating sections also generate an angular velocity sensing waveform based on said angular velocity oscillatory component, said first and second sensor units causing the vibrators thereof to oscillate with mutually opposite phases in said standard vibrating direction so as to cause respective sensing waveform generating sections to generate first and second angular velocity sensing waveforms having mutually inverted phases,

a differential waveform detector for obtaining a differential waveform between said first angular velocity sensing waveform and said second angular velocity waveform so as to cancel in-phase components acting to respective vibrators of said first and second sensor units in said angular velocity sensing direction, and

an input gain adjuster for adjusting at least one of an input gain of said first angular velocity sensing waveform and an input gain of said second angular velocity sensing waveform entered into said differential waveform detector so as to reduce a residual in-phase component of said differential waveform,

wherein

said differential waveform detector includes a differential amplification circuit that inputs analog data of said first and second angular velocity sensing waveforms, and said input gain adjuster includes an analog input gain adjusting circuit that adjusts an analog input gain of said angular velocity sensing waveform,

said analog input gain adjusting circuit has a buffer amplifier provided at an input stage of said differential amplification circuit that inputs said angular velocity sensing waveform,

at least part of a gain determining resistor of said buffer amplifier is constituted by a variable resistor, and

an output of said buffer amplifier being gain adjusted based on resistance value adjustment of said variable resistor is entered into said differential amplification circuit as the angular velocity sensing waveform having been subjected to analog input gain adjustment.

14. (New) The vibration type angular velocity sensor in accordance with claim 12, wherein

said analog input gain adjusting circuit includes a variable resistor constituting at least part of a gain determining resistor of said differential amplification circuit, and said analog input gain adjusting circuit adjusts an analog input gain of said angular velocity sensing waveform entered into said differential amplification circuit based on resistance value adjustment of said variable resistor.

15. (New) The vibration type angular velocity sensor in accordance with claim 13, wherein said variable resistor has a resistance value being irreversibly variable and adjustable only in a predetermined direction.

16. (New) The vibration type angular velocity sensor in accordance with claim 15, wherein said variable resistor is a laser trimmable resistor.

17. (New) The vibration type angular velocity sensor in accordance with claim 14, wherein said variable resistor has a resistance value being irreversibly variable and adjustable only in a predetermined direction.

18. (New) The vibration type angular velocity sensor in accordance with claim 14, wherein said variable resistor is a laser trimmable resistor.

19. (New) The vibration type angular velocity sensor in accordance with claim 1, wherein said input gain adjuster independently adjusts both of said input gain of said first angular velocity sensing waveform and said input gain of said second angular velocity sensing waveform.